

# PATENT SPECIFICATION

DRAWINGS ATTACHED

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905,408



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## COMPLETE SPECIFICATION

### Improvements relating to Shuttering for Casting Concrete and Supports therefor

We, SCAFFOLDING (GREAT BRITAIN) LIMITED, a British Company, of Scaffco Works, Willow Lane, Mitcham, in the County of Surrey, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to shuttering used for constructing overhead concrete work such as, for example, floors and beams and is concerned with the case where shuttering is supported overhead by a scaffolding system including a plurality of vertical members.

Such vertical members may be extensible props but the present invention is capable of use with any form of vertical scaffolding member and may be used with plain poles or tubes.

The object of the invention is to provide improved means for supporting and locating the overhead shuttering.

According to the present invention there is provided shuttering for casting concrete comprising in combination, a supporting member and a shuttering member, the supporting member comprising a platform having means on its underside for attaching it to the upper end of a vertical scaffolding member and having on its upper side a number of projections which are disposed so as to define two grooves or channels extending across the upper surface of the platform and mutually at right angles, the shuttering member being of square or rectangular form with downwardly extending peripheral flanges, the portions of such peripheral flanges adjacent each corner of the shuttering member being engageable in said grooves or channels to locate a corner of the shuttering member upon the platform.

Two embodiments of the invention are illustrated in the accompanying drawings wherein,

Figure 1 is a perspective view of one form of supporting member showing fragments of the corners of four shuttering members which

are supported thereon.

Figure 2 is an underneath perspective view of one form of shuttering member intended for use with the support member of Figure 1.

Figure 3 is a perspective view showing an alternative form of supporting member with a fragmentary view of the corner of another form of shuttering member suitable for use with this particular supporting member.

Referring to Figures 1 and 2 and considering the case of a scaffolding system employing a number of props for supporting overhead shuttering, a number of the supporting members illustrated in Figure 1 will be provided, there being one supporting member at the upper end of each prop, the prop not being shown in the drawings.

The supporting member may be fixed to the upper end of the prop by any convenient means, such as by providing it on its underside with a spigot 10 which can be engaged in the open upper end of the prop and the supporting member 11, shown in Figure 1, lends itself to being made conveniently from wood, although it will be appreciated that if desired it can be made from metal or any other material, such as, plastics or resin bonded glass fibres.

The upper surface 12 of the supporting member, constitutes a platform and this upper surface is formed with upstanding projections 30 which are disposed so as to provide two channel section grooves 13 extending between the two pairs of opposite sides of the platform 12 so as to be in cruciform relationship. The upper surface 12 is further provided with two further grooves 14 extending diagonally, and the grooves 13 and 14 are adapted to receive the formations on the underside of shuttering members, of the form illustrated in Figure 2.

Referring to Figure 2, the shuttering member illustrated there is in the form of a plate, which may also conveniently be formed from

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wood, although it will be appreciated that other material may be used if desired, and as shown, it is of generally square form so as to provide a flat plate-like surface 15 the upper side of which forms the actual shuttering surface and which is provided on its underside with four downwardly extending peripheral flanges 16 and two further downwardly extending flanges 17 which extend diagonally between opposite corners on the underside of the shuttering plate.

Considering now one corner of the shuttering plate illustrated in Figure 2, this is engaged with the supporting member illustrated in Figure 1, so that the two flanges 16 bounding the corner, engage in two grooves 13 of the supporting member, and the diagonal flange 17 engages in the groove 14 which is in between these two grooves 13 and from a study of Figure 1, it will be appreciated that the corners of four such shuttering plates can be engaged upon the support member and similar supporting members on other props will support the other corners of the shuttering plates.

It will be observed that at each end the diagonal flanges 17 have portions 18 which are of flat, generally horizontal form so as to provide flat surfaces for seating in the corresponding grooves 14 of the supporting member.

An alternative form of supporting member is shown in Figure 3, and in this form it may conveniently be formed as a metal pressing or a moulding in a suitable plastics material or in resin bonded glass fibres.

In this case the platform surface 19 of the supporting member is formed with two grooves 20 which are generally of channel section but with side walls which converge inwardly towards the bottom of the groove, and also in this form, the surface 19 is of circular form in plan view and there is provided also a spigot 21 on the underside for attaching the supporting member to the upper end of a scaffolding prop. The parts 31 constitute up-standing projections which define the positions of the grooves 20.

The shuttering plates for use with this supporting member are of generally the same form as illustrated in Figure 2 having a plate-like upper surface 22 and peripheral depending flanges 23. Instead of the diagonal flanges 24 on the underside extending right to the corners they terminate short of the corners

and there is provided a web 25 extending across the corner on the underside of the plate so that when a plate is engaged with a supporting member as shown in Figure 3, the flanges 23 bounding the corner of the plate will engage in the two grooves 20, whilst the web 25 will be located substantially tangentially to the periphery of the circular platform 19.

The platform supporting members above described, provide accurate location of the shuttering plates and operation of erecting an expanse of shuttering is considerably simplified and can be done more rapidly with the aid of the present invention.

#### WHAT WE CLAIM IS:—

1. Shuttering for casting concrete comprising in combination, a supporting member and a shuttering member, the supporting member comprising a platform having means on its underside for attaching it to the upper end of a vertical scaffolding member and having on its upper side a number of projections which are disposed so as to define two grooves or channels extending across the upper surface of the platform and mutually at right angles, the shuttering member being of square or rectangular form with downwardly extending peripheral flanges, the portions of such peripheral flanges adjacent each corner of the shuttering member being engageable in said grooves or channels to locate a corner of the shuttering member upon the platform.

2. Shuttering according to Claim 1 wherein the platform is square in plan view and has a projection at each corner.

3. Shuttering according to Claim 2 wherein the platform has two further grooves or channels extending diagonally and the shuttering member has on its underside downwardly extending flanges positioned diagonally.

4. Shuttering for casting concrete substantially as described with reference to and as shown in Figures 1 and 2 of the accompanying drawings.

5. Shuttering for casting concrete substantially as described with reference to and as shown in Figure 3 of the accompanying drawings.

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#### PROVISIONAL SPECIFICATION

#### Improvements relating to Shuttering for Casting Concrete and Supports therefor

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be described in the following statement:—

This invention relates to shuttering used for constructing overhead concrete work such as, for example, floors and beams and is concerned

with the case where shuttering is supported overhead by a scaffolding system including a plurality of vertical members.

5 Such vertical members may be extensible props but, of course, the present invention is capable of use with any form of vertical scaffolding member and may be used with plain poles or tubes.

10 The object of the invention is to provide improved means for supporting and locating the overhead shuttering.

According to the present invention there is provided a shuttering support member comprising a platform, the underside of which is adapted for attachment to the upper end of a vertical scaffolding member so as to position the platform in a substantially horizontal plane and the upper side of said platform being formed or provided with a recess (or projection) adapted to be engaged by a corresponding and co-operating projection (or recess) respectively on the underside of a shuttering member so as to locate the shuttering member on the platform against displacement in the horizontal plane.

25 The support member may comprise a plate having a channel or trough section groove extending there across and the shuttering member may have a depending flange adapted to be engaged in such groove. Such shuttering member is generally termed a "pan" and this term is used hereinafter for the purpose of simplicity when referring to the shuttering member.

35 Preferably the platform support member is provided with a plurality of grooves and the arrangement may then be that each support member can be used to provide part of the support for a number of shuttering pans as, for example, in the arrangement which is described hereinafter in more detail.

40 Considering, by way of example, the use of the present invention in connection with a scaffolding system employing a number of extensible props, each such prop is normally provided at its upper end with a flat support plate which, as used hitherto, is used to support the conventional form of overhead shuttering.

50 In applying the present invention such support plate is provided with a circular opening in register with the opening in the top of the prop and the platform support member, according to the present invention, may take the form of a plate which has a number of depending grooves formed therein.

55 Such platform may be of any convenient shape in plan view and conveniently may be of square or circular shape and if made in metal, the grooves aforesaid may be pressed out so as to extend below the horizontal surface defined by the upper side of the plate. Alternatively such platform support member may be formed as a moulded product such as, 65 for example, in Fibreglass (Registered Trade

Mark) in which case the grooves aforesaid would be provided integrally by moulding.

70 Preferably there are four grooves provided extending diametrically so as to have a cruciform arrangement and the section of each groove is preferably such that the side walls of the groove converge inwardly towards one another from the open mouth of the groove to the closed bottom thereof.

75 Such platform is also provided with a tubular spigot depending from its underside and adapted to be inserted into the top of a scaffolding prop through the opening provided as aforesaid in the normal support plate.

80 The shuttering pan for use with such platform may be formed as a flat square of plywood or other suitable wood provided with a depending peripheral flange which, in a simple and convenient form, may be provided by securing an angle section bar to the underside of the square shuttering member along each edge thereof.

85 Assuming that the aforesaid platform is used on a prop towards the centre of the scaffolding system it will provide the support for the corners of four shuttering members or pans and each such pan will have its corner supported by the platform with the depending flanges which bound such corner engaging in two of the grooves in the platform which are at right angles. Similarly the other three shuttering pans will each have one corner engaging in grooves in the platform which are mutually at right angles so that each groove has engaged therein in side by side relationship, the depending flanges on two adjacent shuttering pans. 100

105 These depending flanges may be formed so that their outer faces are flat and their inner faces tapered outwardly from the lower edge upwardly so that when two such flanges are side by side they form a wedge which has wedging engagement in the corresponding section of a groove in the platform.

110 A shuttering pan may be made from any other suitable material other than wood or metal and according to a further and preferred feature of the invention, a shuttering pan is made as a moulding in Fibreglass (Registered Trade Mark). 115

120 Such novel form of shuttering pan may be moulded with a flat or substantially flat upper surface and an integrally formed depending peripheral flange which is conveniently moulded so as to have its section tapered from the outer edge so as to provide the wedging effect as mentioned above when two such flanges are side by side in a groove.

125 For strengthening purposes the under side of such moulded pan may have vertically depending webs extending across the four corners and diagonally arranged strengthening webs extending between opposed pairs of such corner webs.

When a shuttering pan moulded as above 130

described is used with a support platform its corner part is engaged with the platform so that the two flanges bounding the corner enter into two of the grooves at right angles on the platform and the web on the shuttering pan which bounds such corner extends across the outside of the quarter segment of the platform so that this quarter segment of the platform is located in the triangular space defined by the web at the corner of the shuttering pan.

The platform support member may also, if desired, be formed as a moulding in Fibreglass (Registered Trade Mark).

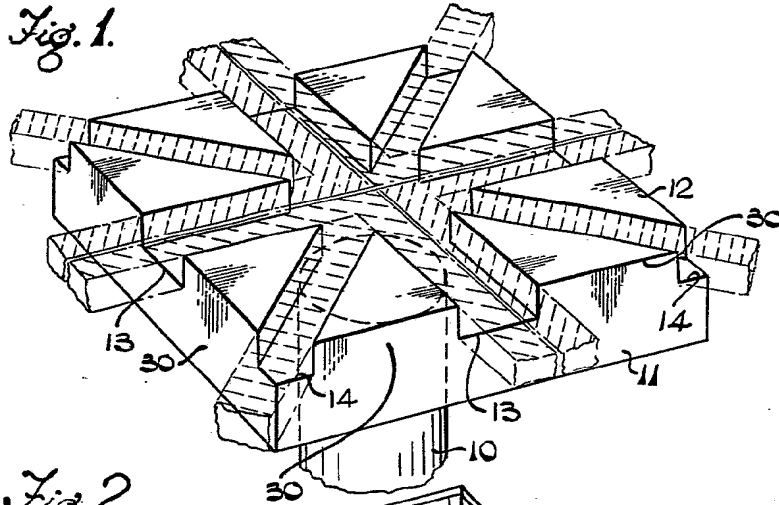
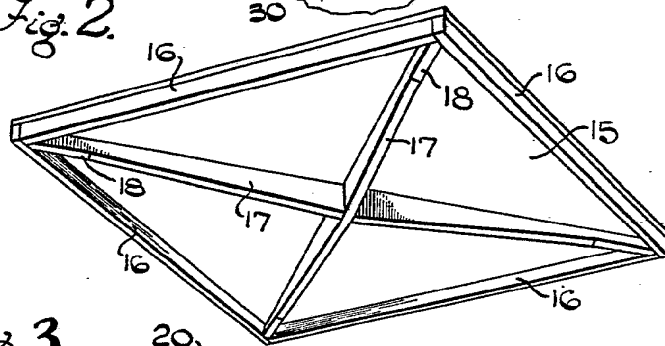
With the arrangement as above described the platform support member provides accurate

location for the shuttering pans and by virtue of the wedge engagement of the flanges on the pans in the grooves on the platform, there is provided positive location against any tendency for displacement in the horizontal plane or any accidental tendency for upwards movement when the shuttering assembly is in position.

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*Fig. 1.**Fig. 2.**Fig. 3.*